

مختصر توصيف المقرر

:(Course Information)

معلومات المقرر *

تقنية النانو	اسم المقرر:
فيز 4762	رقم المقرر:
فيز 3712	اسم ورقم المتطلب السابق:
--	اسم ورقم المتطلب المرافق:
السابع	مستوى المقرر:
	الساعات المعتمدة: 3 (0+0+3)
Module Title:	Nanotechnology
Module ID:	PHYS 4762
Prerequisite (Co-requisite) :	PHYS 3712
Co-requisite :	--
Course Level:	Seventh
Credit Hours:	3 (3+0+0)

Module Description

وصف المقرر :

<p>Historical development of Nanoscience and technology, Formation of energy gap, Discreteness of energy levels Tunneling currents, Formation and characterization of Nanolayers, Applications of Nanolayers, Synthesis and Fabrication of Nanoparticles, Characterization and Application of Nanoparticles, Top Down Nanostructuring Techniques, Nano-devices and applications. Review</p>

Module Aims

أهداف المقرر :

1	Aim of this course is to provide the fundamentals of Nanotechnology.	1
2	Understand how some basics properties of materials changes in nano-size.	2
3	Students get idea of how to prepare nanostructured materials	3
4	Get knowledge of important characterization techniques for Nanomaterials	4

Learning Outcomes: مخرجات التعليم:

1	Fundamental Concepts of Nanotechnology and applications	1
2	Can conduct general literature survey on particular topic of Nanotechnology	2
3	Conduct and present relevant task in a group and learn time management.	3
4	Problem solving on particular topic of Nanotechnology	4

Course Contents:

محتوى المقرر:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
9	3	Historical development of Nanoscience and technology,
6	2	Formation of energy gap, Discreteness of energy levels
6	2	Tunneling currents,
9	3	Formation and characterization of Nanolayers, Applications of Nanolayers,
6	2	Synthesis and Fabrication of Nanoparticles, Characterization and Application of Nanoparticles,
6	2	Top Down Nanostructuring Techniques, Nanodevices and applications.
3	1	Review

Textbook and References:

الكتاب المقرر والمراجع المساندة:

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
2010	Springer	R. Fahrner	Nanotechnology and Nanoelectronics Materials, Devices, Measurement Techniques
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
2008	CRC Press, Taylor & Francis Group	Gabor L. Hornyak, John J. Moore, H.F. Tibbals, Joydeep Dutta	Fundamentals of Nanotechnology
2011	Imperial college press - Springer	Guo Zhong Cao	Nanostructures and Nanomaterials synthesis, properties and applications